GDT 78

A. Scope

For a complete list of GDTs, see the Table of Contents.

Use this test method to determine the Profile Index from profilograms of pavements, made with the Rainhart-type profilograph.

For pavements, the profilogram is recorded on a scale of 1 in (25 mm) equals 25 ft (7.6 m) longitudinally and a vertical scale of 1:1.

Determining the Profile Index involves measuring "scallops" that appear outside a blanking band.

B. Apparatus

The apparatus consists of only the following:

1. Scale: Use a clear plastic scale, 1.50 in (37.5 mm) wide and 11.0 in (280 mm) long. Near the center of the scale is an opaque band, 0.1 in (2.5 mm) wide, extending the entire length of 11.0 in (280 mm). On either side of this band are lines scribed 0.1 in (2.5 mm) apart, parallel to the opaque band. These lines serve as a convenient scale to measure deviations, or scallops of the graph above or below the blanking band.

C. Sample Size and Preparation

No special sample preparation is needed.

D. Procedures

1. Place the plastic scale over the profile so it blanks out as much of the profile as possible. The scallops above and below the blanking band will be approximately balanced. (See Figure 78-1)
   a. The profile trace will move from a generally horizontal position when going around super-elevated curves, making it impossible to blank out the central portion of the trace without shifting the scale.
   b. In this case, break the profile into short sections and reposition the blanking band on each section. (See Figure 78-2.)
2. Beginning at the right end of the scale, measure and total the height of all the scallops appearing both above and below the blanking band.
   a. Measure each scallop to the nearest 0.05 in (1.27 mm).
   b. Short portions of the profile line may be visible outside the blanking band, but unless they project 0.03 in (0.75 mm) or more and extend longitudinally for 2 ft (600 mm) or more, do not include them in the count. (See Figure 78-1 for special conditions.)
3. After totalling the scallops in the first scale length, slide the scale to the left. Align the right end of the scale with a small mark made at the end of the first scale length.

E. Calculations

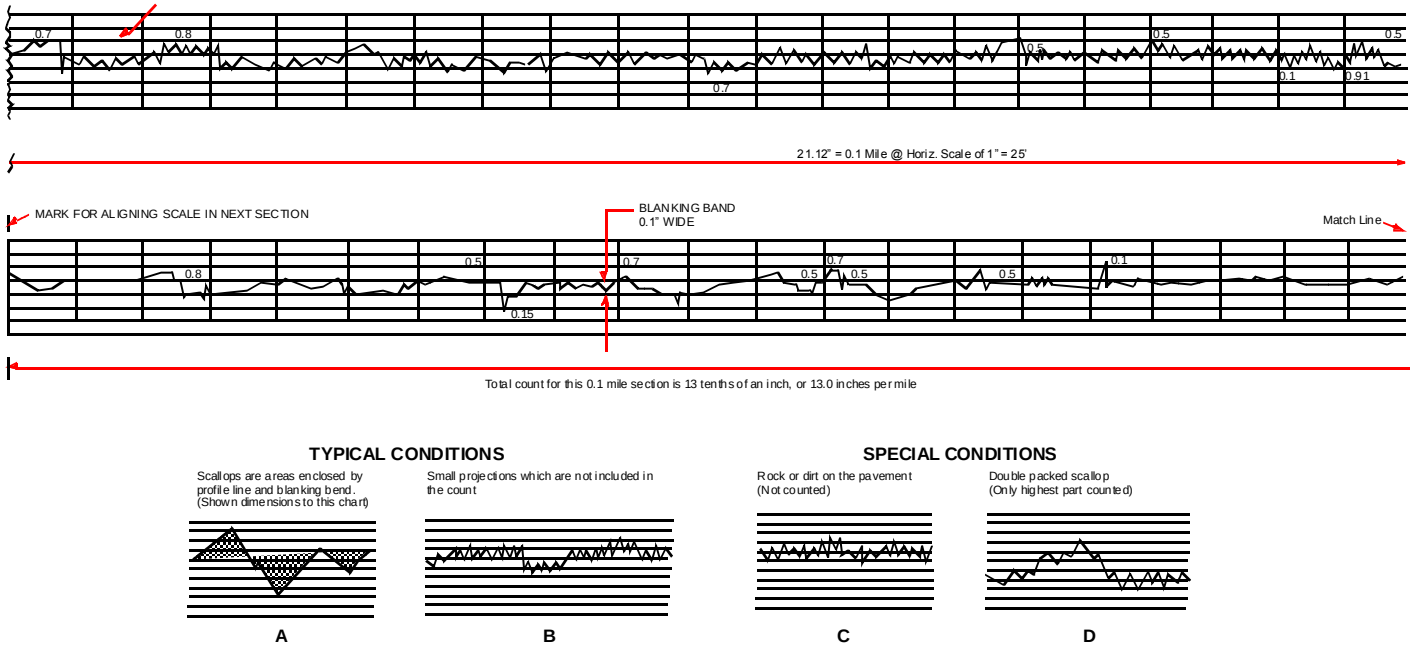
The Profile Index is determined as "inches per mile (millimeters per kilometer) in excess of the 0.1 in (2.5 mm) blanking band." The formula for calculating Profile Index is:

$$\text{PROFILE INDEX} = \frac{\text{1 MILE}}{\text{LENGTH OF SECTION IN MILES}} \times \text{TOTAL COUNT IN INCHES}$$

$$\text{PROFILE INDEX} = \frac{\text{1 KILOMETER}}{\text{LENGTH OF SECTION IN KILOMETERS}} \times \text{TOTAL COUNT IN MILLIMETERS}$$

F. Report

Report the profile index in "inches per mile (millimeters per kilometer) in excess of the 0.1 in (2.5 mm) blanking band" on the Profilograph Report Form.



EXAMPLE SHOWING METHOD OF DERIVING PROFILE INDEX FROM PROFILOGRAMS

Figure 78-1

METHOD OF COUNTING WHEN POSITION OF PROFILE SHIFTS AS IT MAY WHEN ROUNDING SHORT RADIUS CURVES WITH SUPERELEVATION

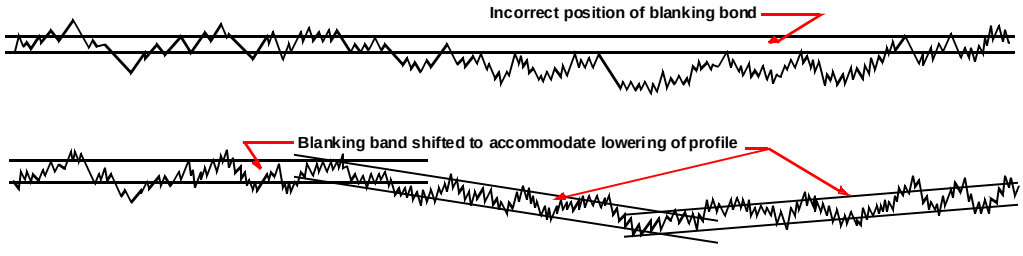


Figure 78-2

GDT 78 Form 1

Profilograph Report Form

Project No.: Date:

Contractor:

Operator: Profilograph No.:

Segment No.	Location From - To	Direction	Lane No.	Profile Index	Corrections Required
	-				
	-				
	-				
	-				
	-				
	-				
	-				
	-				
	-				
	-				
	-				
	-				

Required Individual Bump Corrections

Segment No.	Station No.

Profilograph Form